

## Anxiousness, Self-esteem, and Anxiety: Which Variable is a Predictor?

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### Abstract

The paper deals with the issue on the relations of self-esteem, anxiousness and anxiety at teenagers. The aim of the research was to identify the influence of anxiousness on self-esteem and influence of self-esteem on anxiety within a sample of adolescents and intersexual difference in variables. The research sample consisted of 2 374 adolescents (females  $n = 1149$ ) out of which 356 suffer from the symptoms of anxiety disorders (ADS; females  $n = 263$ ). The variables were gained through the revised Rosenberg self-esteem scale and SUDS scales for anxiousness and anxiety findings. Using statistical analyses it was found that females reached a lower average score in self-esteem ( $t = 10.512$ ;  $p < .001$ ) and a higher average score in anxiousness ( $t = 10.132$ ;  $p < .001$ ). Similar results were achieved also at the sample of adolescents in variables of self-esteem ( $t = 3.611$ ;  $p < .001$ ) and anxiety ( $t = 5.845$ ;  $p < .001$ ). Furthermore, was found that there is a statistically significant predictable relation between research variables: anxiousness is a predictor of self-esteem ( $F = 2495.490$ ,  $p < .001$ ) at a non-ADS sample of respondents, whereby ADS respondents' self-esteem is a significant predictor of anxiety ( $F = 83.810$ ,  $p < .001$ ).

**Keywords:** Anxiousness, Self-Esteem, Anxiety, Adolescence

### Introduction

Self-esteem as a psychological construct is an issue of professional interest in various contexts: variable correlates and predictors of self-esteem self-esteem (variability and vulnerability) as a predictor of illness, as a predictor of behaviour; and as a predictor of personal characteristics etc [1-5].

Rosenberg is the father of a self-esteem construct as a global self-evaluation [1]. He states that self-esteem refers to an individual evaluation of the self and means favourable or unfavourable attitude toward the self. The self-esteem as self-evaluation involves cognitive appraisals about general self-worth and affective experiences of the selves that are linked to these global appraisals [6].

Any attitude directed towards ourselves or outside has also its behavioural component, it motivates a person towards an action and is reflected in his/her acting [7]. states that behavioural intentions of the attitude of a person are the most important predictors of behaviour altogether with perceived controlled behaviour [8]. In the context of a self-esteem construct, we perceive two levels of behaviour [9]. The primary level is bound with the behaviour in the relation to himself/herself, and secondly as an impact of lower or higher self-respect in behaviour in a social environment [8].

Currently, along with a psychological construct self-esteem, the studies on anxiety and anxiety disorder have been widely discussed

and their correlated risks and protective factors by the scientists mediating relation of personality variables to the relation of anxiety to other illnesses or personality constructs; as well as to the impacts of anxiety disorders and a high level of anxiety for experiencing, behaviour or personality of an individual and the research of moderators or mediators or impacts of treatments or psychological and therapeutic interventions on particularly diagnosed disorder and/or other indicators of the quality of life of an individual with anxiety disorder [10-21]. We can also state that the studies on anxiety and anxiety disorders have been carried out throughout many cohorts of population, e.g. within the application of ontogenetic specification at cohort: children adolescents adults or the clinical point of view at cohort: patients diagnosed by anxiety disorder-patients diagnosed with other illness according to ICD-10- non-clinical sample [11,13,18,19,22,24-27].

Anxiety is a non-specific syndrome which is rather short-term and time limited psychical state, appearing with the psychical syndromes or 'impairment' of any physical system. This is an emotional state fulfilling adaptation function and it is considered to be the common response to stress. Anxiousness is according to Hartl & Hartlová a personal feature (therefore relatively stable personal characteristics), related to strong emotions of anxiety, tension and discomfort as well as fears without evident reasons [28]. The high level of anxiousness is a significant attribute of anxiety disorders connected with frequent occurrence of fear and/or anxiety, with long-term and high intensity not appropriate in relation to the situation triggering it. Anxiety disorders are significant symptom of anxiety disorders connected with frequent

fear occurrence and/or anxiety, with long-lasting and high intensity as well as inappropriateness in relation with a situation triggering it. Anxiety disorders are significant with tantrums or continuously fluctuating states of distress through which physical or psychological anxiety expressions appear without any real danger occurrence [17]. The annual prevalence of anxiety disorder is around 20 %, whereby the whole life prevalence is between 25 % up to 30% [22]. Anxiety disorders are the most frequent psychiatric diagnoses at children attending schools with the whole life prevalence between 8 until 27 % among the most frequent diagnosed anxiety disorders at adolescents below panic disorder, agoraphobia and social phobia [29].

Interconnection of psychological construct of self-esteem and anxiety and/or anxiety disorder is in available studies quite frequent, that is mainly in a level of self-efficacy research (and its variability) at people with a diagnosis of anxiety disorder/any type of anxiety disorder whereby the conclusions point at the interconnection of the low self-esteem with anxiety disorder [13,3,19,4].

Social phobia, overanxious disorder, OCD, and simple phobia significantly predicted self-esteem, with social phobia having the highest impact on average self-esteem [13]. Studies on anxiousness are less frequent as features of a personality in relation to self-esteem, however, grounding from existed knowledge experienced anxiety of non-clinical sample and/or anxiousness relates to low self-esteem [25]. The people with high self-esteem experience more happiness, optimism, and motivation than those with low self-esteem, as well as less depression, anxiety, and negative mood [26]. According to the findings of Benetti & Kambouropoulos the anxiety trait was positively related to negative affection which in turn was negatively associated with self-esteem (there was no significant direct but mediating effect - positive and negative affection significantly mediated the influence of trait anxiety on self-esteem) [30].

This research conclusion formulated by us falls into the research of a predictive task of a relatively stable feature of the personality anxiousness for self-esteem at adolescents. Maldonado et al [13]. findings indicated that self-esteem increases from adolescence through young adulthood. We assume that anxiousness is a significant predictor of self-esteem at men and women in their adolescence. The stated research objective has not been discussed enough (more frequent is self-esteem searched as a predictor of anxiety disorder as it is stated above). The stated theoretical backgrounds indicate that anxiousness as a personal feature is a predictor of self-esteem (as well as other personal characteristics) and further low self-esteem contributes towards anxiety disorder in adolescence.

## Materials and Methods

### Participants

A representative research sample consisted of 2 374 Czech adolescents. The average age of respondents was 16.97 years with a standard deviation of 1.054 years. Considering the aim of research, research sample was divided in two subgroups based on a gender. The male research sample consisted of 962 students with average age of 17.02 years (SD=1.052). The female research sample consisted of 1 412 students with average age of 16.94 years (SD=1.054). The basic data set is represented by 348 678 adolescents. The research file accounts for approximately .68 % of the base file.

Out of the research file  $n=356$  individuals, out of which  $n=263$  (18.62%) are females and  $n=93$  (9.67%) males suffer from symptoms

of anxiety disorder [31]. The respondents in our research sample reached an average score in anxiousness  $M=54.47$ . According to the manual, number 60 refers for this age group, which means that 60.99 % equally old respondents reached in this variable lower results than the respondents in our research sample [31]. The variable for self-esteem is not presented in this manual.

### Instruments

For measuring self-esteem, the Rosenberg self-esteem scale was used, which was standardized by Blatný & Osecká and revised and validated later by Suchá et al. with a representative sample of the Czech respondents ( $N = 4 075$ ) [32]. Internal validity and reliability have been validated by the factor analysis, and the whole scale measures global self-evaluation with two sub-scales: Self-respect and Self-humiliation. The questionnaire consists of 10 questions. The respondent responds to the questions using the 4-point Likert scale (1- Strongly disagree, 2- Disagree, 3- Agree, 4- Definitely agree). Higher average scores represent a higher degree of self-esteem. Self-humiliation has a reverse character, and when analysing global self-esteem as a single construct, the score of this sub-scale is recalculated. Reliability of questionnaire determined by Cronbach alpha coefficient is  $\alpha = .83$ , while for the subscale Self-respect is  $\alpha = .80$  and for the subscale Self-humiliation is  $\alpha = .73$ .

For measuring anxiousness standardizes SUDS scale was chosen [31]. The questionnaire was standardized by Dolejš & Skopal [31] on a representative research sample of the Czech respondents. Internal validity and reliability were verified by factor analysis (EFA, CFA), and the whole scale measures anxiety as a one-dimensional structure [31]. The questionnaire consists of 24 questions. The questions are focused on measuring feelings and experiences in different situations [31]. The respondent responds to the questions using the 4-point Likert scale (1- Strongly disagree, 2 - Disagree, 3- Agree, 4 – Definitely agree). Higher average scores indicate a higher level of anxiousness among respondents. With the help of the scale it is possible to identify also the individuals suffering from anxiety disorder syndrome (ADS). That is, according to the manual, calculated according to the formula - average  $M + 1$  SD, respectively for boys and girls [31]. Within our research file these values are 62.7 for boys and 66.8 for girls, whereby for the whole file the bordering value for the anxiety disorder is 65.4. The reliability of questionnaire determined by Cronbach alpha coefficient is  $\alpha = .89$ .

### Data collection procedure

In order to obtain information about adolescents' self-esteem and anxiousness standardized research tools were chosen (questionnaires, paper form). The whole research tool consists of two full questionnaires for the measurement of research variables and one questionnaire for the detection of demographic information of participants. Participants submitted questionnaires with consent to the processing of data. All questionnaires were anonymous and participants had 60 minutes to complete the questionnaires. The data were collected by psychologists in all country regions.

### Data analysis procedures

The data were analysed through the program Statistical Package for Social Science (SPSS), version 20.0. And STATA 13. The descriptive analyses (mean, standard deviation, standard error of mean) were performed for the characterization of the sample. Before running a statistical analysis, missing research data were verified using the MCAR test (Little's Missing Completely at Random), and normality

of the research data were verified using the skewness, kurtosis and Kolmogorov-Smirnov RS test [33]. Based on analysis of normality distribution, parametric statistical tests were used for further analysis.

Differences between male and female students were evaluated using Student's t-test. To determine the correlation between anxiousness and self-esteem Pearson coefficient of correlation was used, while linear regression analysis was used, based on a Breusch-Pagan test of homoscedasticity, to determine the statistical prediction.

## Results

Observing only the average score, students have reached the higher average score in the self-respect (M=13.00; MIN=7, MAX=20) compared to the average score of self-humiliation (M=7.00; MIN=0, MAX=17). However, both variables were scored average considering the minimum and the maximum reachable score. Average score of global self-esteem was M=28.45 (MIN=13, MAX=40). Compared to the standards presented by Suchá & Dolejš in the manual, we do not notice significant differences compared to the score that was measured in our sample. For the individuals aged from 11 to 18 years,

the authors reported the average score of M=27.88. Anxiousness, also reached an average score of M=54.47 considering the minimum and maximum reachable score (MIN=25, MAX=90), which is negligibly higher average score compared to the standardized norms for this age group (Table 1) [31]. Out of the overall research file n=356 of individuals were with anxiety disorder (15.12%; based on the formula  $M + 1 SD$ , according to Dolejš & Skopal, 2016). Significantly more respondents with anxiety disorders were at the population of females (n=263, 18.62%), whereby n = 93 male respondents, that is 9.67% [31].

Table 1 also summarizes correlations between self-esteem and its subscales and anxiousness of adolescents'. The results show that significant correlations were obtained between all research variables, specifically: anxiousness is in negative linear correlation with self-respect ( $r = -.568, p < .001$ ) and global self-esteem ( $r = -.699, p < .001$ ), while between anxiousness and self-humiliation was obtained positive linear correlation ( $r = -.675, p < .001$ ). This means that with increasing self-esteem, anxiousness is decreasing.

**Table 1: Descriptive Statistics of Research Variables and Correlation Coefficients between Self-Esteem and Anxiousness**

Variables	N	M	SD	SEM	1	2	3	4
1. Self-respect	2 374	13.00	2.953	.061	1			
2. Self-humiliation	2 374	7.00	2.953	.061	-.614**	1		
3. Self-esteem	2 374	28.45	4.674	.096	.870**	-.923**	1	
4. Anxiousness	2 354	54.47	10.929	.225	-.568**	.675**	-.699**	1

**Note.** N– Number; M– Mean; SD– Standard Deviation; SEM– Standard Error of Mean.

By a statistical analysis using the Student t-test, a statistically significant gender differences were found in all research variables in non-ADS sample. Female adolescents (n = 1 149) scored statistically lower compared to male adolescents (n = 869) in self-respect (t = 12.045) and global self-esteem (t = 10.512), while female adolescents scored statistically higher compared to male adolescents in self-humiliation (t=10.512) and anxiousness (t=10.132). In ADS research group, female adolescents (n = 263) scored statistically higher compared to male adolescents (n = 93) in self-humiliation (t = 5.115) and anxiety (t = 5.845), while male adolescents scored statistically higher compared to female adolescents in self-esteem (t = 3.611). No significant gender differences were found in variable self-respect among ADS research sample.

**Table 2: Gender Differences in Self-Esteem (Self-Respect, Self-Humiliation), Anxiousness and Anxiety in Non-Ads and Ads Research Samples**

Variables		Males		Females		t	p
		M	SD	M	SD		
ADS Non sample	Self-respect	13.86	2.938	12.42	2.819	12.045	<.001
	Self-humiliation	6.14	2.938	7.58	2.819	12.045	<.001
	Self-esteem	29.64	4.652	27.63	4.513	10.512	<.001
	Anxiousness	51.76	10.956	56.31	10.522	10.132	<.001
ADS sample	Self-respect	13.66	2.503	13.39	2.150	1.153	.249
	Self-humiliation	9.02	2.774	10.29	2.174	5.115	<.001
	Self-esteem	24.64	4.723	23.09	3.791	3.611	<.001
	Anxiety	69.08	6.038	72.48	5.089	5.845	<.001

**Note.** Non-ADS – non-anxiety disorder syndrome research sample; ADS – anxiety disorder syndrome research sample; M– Mean; SD– Standard Deviation; t– Student t-test; p– Level of Statistics Significance.

Results of linear regression analysis show that independent variable significantly predicted self-esteem of the participants ( $F(1, 2373) = 2495.487, p < .001$ ) in non-ADS sample. The value of  $R^2 = .516$  indicated that the anxiousness accounted for 51.60% of the total variance in self-esteem. The prediction was also significant in both sexes. Considering the data of the each research sample, anxiousness significantly predicted self-esteem of the female participants ( $F(1, 1148) = 1327.787, p < .001$ ), and male participants ( $F(1, 868) = 989.902, p < .001$ ). In the female research sample anxiousness is accounted for 48.80%, while in male participants anxiousness is accounted for 51.10% of the total variance in self-esteem, based on  $R^2$  coefficients. Based on this, it can be estimated that anxiousness significantly contributes to prediction of a self-esteem ( $\beta = -.718$ ), while in male population it has a stronger effect ( $\beta = -.715$ ) compared to the female population ( $\beta = -.699$ ; Table 3). Homoscedasticity of the data was confirmed by Breusch-Pagan test (total:  $\chi^2 = 7.960, p = .099$ ; females:  $\chi^2 = 7.460, p = .059$ ; males:  $\chi^2 = 8.220, p = .145$ ).

**Table 3: Linear Regression Analysis: Anxiousness As A Predictor of Self-Esteem Among Adolescents (Non-Ads Sample)**

Coefficients	Males	Females	Total
B	-1.683	-1.634	-.306
$\beta$	-.715	-.699	-.718
R	.715	.699	.718
$R^2$	.511	.488	.516
F	989.902	1327.790	2495.490
p	<.001	<.001	<.001

**Note.** R– Multiple Correlation Coefficient;  $R^2$ – Coefficient of Determination;  $\beta$  – Beta Coefficient; F– F Ratio; p– Level of Statistics Significance

In the following part we will focus on the analysis of the relation of self-esteem to anxiety of the group of our research file, in which the measured values of anxiousness in accordance with the norms of Dolejš & Skopal predict the occurrence of the anxiety disorder syndrome (females  $n=263 = 18.62\%$  out of the research sample and males  $n=93 = 9.67\%$  out of the research sample) [31]. Results of linear regression analysis show that independent variable significantly predicted anxiety disorder of the participants ( $F(1, 355) = 83810, p < .001$ ). The value of  $R^2 = .182$  indicated that the self-esteem accounted for 18.20% of the total variance in self-esteem. Small gender differences were also identified. Based on  $R^2$  coefficients, in the female research sample self-esteem is accounted for 13.50% ( $F(1, 626) = 36.220, p < .001$ ), while in male participants self-esteem is accounted for 17.50% of the total variance in anxiety ( $F(1, 92) = 31.860, p < .001$ ). Based on this, can be estimated that self-esteem significantly contributes to prediction of anxiety ( $\beta = -.429$ ), while in male population it has a stronger effect ( $\beta = -.426$ ) compared to the female population ( $\beta = -.372$ ; Table 4). Homoscedasticity of the data was confirmed by Breusch-Pagan test (total:  $\chi^2 = 8.11, p = .120$ ; females:  $\chi^2 = 7.40, p = .055$ ; males:  $\chi^2 = 7.963, p = .100$ ).

**Table 4: Linear Regression Analysis: Self-Esteem As A Predictor of Anxiety Among Adolescents (Ads Sample)**

Coefficients	Males	Females	Total
B	-.315	-.251	.295
$\beta$	-.426	-.372	-.429
R	.426	.372	.429
$R^2$	.175	.135	.182
F	31.860	36.220	83.810
p	<.001	<.001	<.001

**Note.** R– Multiple Correlation Coefficient;  $R^2$ – Coefficient of Determination;  $\beta$  – Beta Coefficient; F– F Ratio; p– Level of Statistics Significance.

## Discussion

The aim of the work was to find out the relations of anxiousness (anxiety trait), anxiety and self-esteem. The relation between self-esteem and anxiousness has only rarely been studied, there is a high number of empirical findings on relation of self-esteem and anxiety [13,30]. Self-esteem might serve as a protective factor, as a moderator, mediator or simply a result of emotional well-being or difficulties [3]. Based on the previous findings and above mentioned ideas, anxiousness as a personal characteristic is a predictor of self-esteem, whereby self-esteem influences anxiety (generalized or specific)[19]. Based on this fact, two objectives of the work were identified: finding of a relation between anxiousness and self-esteem, and a relation of self-esteem and anxiety [4]. With the help of analyses a strong predictive relation between anxiousness and self-esteem was found with a small deviation between the sexes [34-36]. Anxiousness is considered the surface individual attribute of behavioural inhibition system functioning and has been found to be positively correlated with measures of inhibition [37]. Thus, individuals with a high anxiety trait are presumed to be particularly sensitive to punishment leading to increased negative affect [38,39]. The current findings indicate that the elevated negative affection experienced by individuals with a high anxiety trait (possibly due to an underlying sensitivity to punishment) may have a detrimental effect on self-esteem [30].

The second hypothesis presumes a relation between self-esteem and anxiety (generalized). In our research sample 15.12% individuals were identified who based on the symptoms expressed in SUDS scale suffer from generalized anxiety disorder [31]. It was found that this number had been significantly higher (18.62%) at females in adolescent age in comparison with males (9.67%). These results correspond also with other studies [40]. Gender differences in the scale of anxiety are of biological and psychological backgrounds. Female preponderance in anxiety disorders is due to genetically or biologically determined differences between the sexes or gender differences in anxiety are linked to the differences in the experiences and social roles of men and women in this culture [41]. This was reflected in the scale of anxiety in which females reached significantly higher average score in ADS research sample of respondents. As presumed by the hypothesis, self-esteem significantly predicts anxiety similarly at both sexes (variability difference approximately 4%). However, the percent of determination is substantially lower than with anxiousness. Thus, the influence of personality traits on self-esteem is more significant than the influence of self-esteem on

anxiety. Adolescence, as a transitory state, is subject to increased responsibility that may lead to additional stress thereby affecting self-esteem. Adolescents who experience greater stress are typically depressed or anxious with evidence suggesting decreases in self-esteem for these adolescents [42]. The present study agrees with this conjecture.

### Limits and final considerations

We realize that this research has certain limits. The first limit is the inability to generalize the conclusions of the research on the whole population of adolescents in the Czech Republic. The representativeness of the sample was tight only a population of adolescents studying at the secondary grammar schools in the Czech Republic. In order to study the predictive role of anxiousness on self-esteem of adolescents it would be necessary to carry out a representative selection from the whole population of adolescents. The second limit of our research is the fact that our research was carried out with the non-clinical sample of adolescents therefore the research results cannot be generalized on a sample of individuals with diagnosed anxiety disorder. Perspectively, it would be necessary to verify by the research whether our findings are valid also for adolescents diagnosed with anxiety disorder. In the file of the Czech adolescents studying at the secondary grammar schools in comparison with the findings of the research by McLean et al. with 20013 adolescents a lower occurrence of anxiety disorder symptoms were found- our female file with the symptoms of anxiety disorder 18.62% vs. female file in the presented study were 22.70 %; our male file with the symptoms of anxiety disorder was 9.67 % vs. male file in the presented study was 13 %. The differences were presumably caused by demo-geographical background or the size of a sample [43]. Therefore, we consider it important to continue in the research in order to find out whether self-esteem (as well as other self-constructs) are mediators between personality traits and characteristics of adolescents and anxiety disorders (particular types of anxiety disorders) in a clinical as well as the representative non-clinical sample.

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